BEFORE

THE PUBLIC SERVICE COMMISSION

OF SOUTH CAROLINA

DOCKET NOS. 2021-143-E & 2021-144-E

In the Matters of: Application of Duke Energy Progress, LLC for Approval of Smart $aver Solar as Energy Efficiency Program Application of Duke Energy Carolinas, LLC for Approval of Smart $aver Solar as Energy Efficiency Program	**DUKE ENERGY PROGRESS, LLC'S AND DUKE ENERGY CAROLINAS, LLC'S PETITION FOR RECONSIDERATION AND/OR REHEARING OF ORDER NO. 2022-239**

Pursuant to S.C. Code Ann. § 58-27-2150 and S.C. Code Ann. Regs. 103-825(A)(4), Duke Energy Progress, LLC ("DEP") and Duke Energy Carolinas, LLC ("DEC" and together with DEP, the "Companies") respectfully request that the Public Service Commission of South Carolina (the "Commission") reconsider and rehear Order No. 2022-239 issued in Docket Nos. 2021-143-E and 2021-144-E on April 4, 2022 (the "Order"). As discussed below, the findings of the Order are clearly erroneous as they ignore evidence in the record supporting the Companies' cost-effectiveness analysis and instead adopt a fundamentally flawed analysis advanced by the South Carolina Office of Regulatory Staff (the "ORS"). This petition (the "Petition") is timely filed in accordance with S.C. Code Ann. § 58-27-2150 and S.C. Code Ann. Regs. 103-825(A)(4).

BACKGROUND & EXECUTIVE SUMMARY

On April 23, 2021, the Companies submitted to the Commission an application for approval of the Smart $aver Solar as Energy Efficiency Programs (collectively, the "Program") to be included as part of their suite of energy efficiency ("EE") and demand-side management

("DSM") programs. The Program encourages reductions in customer energy consumption from the grid by requiring (i) the installation of solar photovoltaic ("PV") facilities, and (ii) a 25-year commitment to participation in the winter-focused Power Manager Load Control Service Rider, also known as Bring Your Own Thermostat ("Winter BYOT Program")[1]. In support of the Program, the Companies provided the Commission with detailed analysis and expert testimony that clearly demonstrated, among other things, that the Program achieved the required cost-effectiveness thresholds under the Commission-approved EE/DSM Mechanism. Specifically, the Companies provided evidence that the Program's Utility Cost Test ("UCT") results far exceeded the 1.0 threshold—2.52 for DEC and 1.95 for DEP. When translated to real dollars, the estimated **net savings** for the Companies' retail customers resulting from the Program are approximately $18,000,000.

A key variable in these analyses is the Companies' projected free-ridership under the Program. Free-ridership measures the percentage of customers who receive an incentive, but would have participated even if they had not. As the free-ridership percentage increases, the cost-effectiveness of the Program decreases because the Companies are unable to take credit for the savings arising from those customers. When analyzing the Program, the Companies assumed free-ridership of 0%, but as a conservative measure, the Companies included a 10% free-ridership assumption in the Program's cost-effectiveness evaluation. As discussed below, to the extent this percentage is determined to be inaccurate during the Evaluation Measurement and Verification ("EM&V") process, **the Companies are willing to bear that risk** through the true-up process. The ORS's witness utilized a staggeringly high 79% estimate for free-ridership. The record reflects that ORS's witness Brian Horii was only able to arrive at such a dramatic estimate through

[1] The Winter BYOT Program was approved by the Commission in Order No. 2020-830.

a series of critically flawed assumptions. To the extent the Order relies upon these flawed concepts, the Order errs as a matter of law.

To be clear, free-ridership estimates the number of participants in the Program that would have installed solar panels and a smart thermostat without receiving the incentive. Witness Horii's definition of free-ridership conflicts with the commonly-accepted definition adopted by a substantial number of organizations in the industry, including the State and Local Energy Efficiency Action Network,[2] the National Renewable Energy Laboratory,[3] and the California Public Utilities Commission.[4] Only through flawed assumptions and defiance of industry-accepted practices does Witness Horii create a free-ridership figure so dramatically high that changing this one metric in the UCT torpedoes the cost-effectiveness of the Program for the Companies. To be clear, the free-ridership estimate for the Program could have been increased to 50% for DEP and 60% for DEC, and the Program would have still been cost-effective. Accordingly, as stated more fully below, the grounds for this request for reconsideration and rehearing (to the extent necessary) are based upon the Order's reliance on Witness Horii's critically flawed calculations.

As discussed at length in prefiled testimony and at the hearing in this proceeding, the Program arises from a wide-ranging settlement among the Companies and stakeholders

---

[2] *Energy Efficiency Program Impact Evaluation Guide*, State and Local Energy Efficiency Action Network, https://www.energy.gov/sites/default/files/2014/05/f15/emv_ee_program_impact_guide.pdf (Dec. 2012) (distinguishing spillover from free-ridership, while noting that "[i]f overly conservative free-ridership measurements are taken, and if free ridership is used to penalize programs, then some program efforts may be killed prematurely before market transformation or ambitious levels of savings are achieved.")

[3] *The Uniform Methods Project: Methods for Determining Energy Efficiency Savings for Specific Measures*, NREL, https://www.nrel.gov/docs/fy18osti/70472.pdf (Aug. 2018) (characterizes free-ridership as a backward-looking measure, noting that it is "the program savings attributable to free-riders (**program participants** who would have implemented a program measure or practice in the absence of the program.)") (emphasis added).

[4] *Energy Efficiency Policy Manual*, Calif. Public Utilities Commission, https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/e/6442465683-eepolicymanualrevised-march-20-2020-b.pdf (April 2020) (describes free-ridership as "the degree to which customers would have installed the program measure or equipment even without the financial incentive.")

representing interests such as clean energy and the rooftop solar industry. The settlement combined mechanisms and industry best-practices such as time-of-use ("TOU") rates, critical peak pricing ("CPP"), rooftop solar panels, and smart thermostats that would allow the Companies to shave both winter and summer peaks. The settlement from which the proposed Program arises received national attention due to the compromise among parties that are typically at odds and the resulting benefits to the Companies' customers.[5]

Witness Horii's flawed analysis requires the Commission to take several leaps in logic that are clearly contradicted by facts in the record. Yet, the Program was denied based upon an analysis that stands in direct conflict with accepted EE/DSM principles in South Carolina and selectively applies criteria to undermine the entire Program. As outlined below, to accept Witness Horii's analysis, the Commission must ignore (i) the Companies' real-world experience with free-ridership; (ii) the accepted distinction between spillover and free-ridership; (iii) the realities of the Program's eligibility requirements; (iv) the *de minimis* adoption rates of solar on the Companies' systems; (v) Witness Horii's false equivalency utilized in his adoption forecasts; and (vi) the express language of the Commission-approved EE/DSM Mechanism. Only once these factors are ignored can one conjure up a free-ridership percentage greater than any percentage realized under the Companies' existing Commission-approved EE/DSM programs.

By adopting the recommendation of Witness Horii, the Order will likely have the unintended consequence of establishing **insurmountable** barriers for future EE/DSM programs. The Companies' analysis provides everything to the Commission except actual numbers—numbers that simply do not exist. If the "Horii EM&V" process is the standard going forward, this

[5] Utility Dive, Duke-solar industry breakthrough settlement aims to end rooftop solar cost shift debates, https://www.utilitydive.com/news/duke-solar-industry-breakthrough-settlement-aims-to-end-rooftop-solar-cost/585124 (Sept. 16, 2020).

creates a threshold that the Companies are simply unable to achieve or even accurately ascertain because Witness Horii's analysis stands in direct conflict with the long-standing tenets of EE/DSM programs in South Carolina.

The Order is contrary to industry trends and accepted practices related to EE and calculation of free-ridership. Importantly, Energy Information Administration's ("EIA") definition of energy efficiency that was so heavily relied upon by Witness Horii—and which was block-quoted in the Commission's Order—**has changed**. Although Witness Horii placed great weight upon the EIA definition to allege that the Program did not qualify as an EE measure, the revised EIA definition recognizes a significantly less restrictive view of EE.[6] Under the EIA definition, it makes no difference whether solar PV also has energy conservation characteristics because these often "overlap" with EE measures. Further, while the Order appears to draw a distinction between "conservation" and "energy efficiency," even the South Carolina statute governing these programs lumps them together, permitting procedures that "encourage electrical utilities and public utilities providing gas services subject to the jurisdiction of the commission to invest in cost-effective **energy efficient technologies and energy conservation programs**."

As described above, Witness Horii's analysis stands in direct conflict to widely-accepted industry principles on these points. In adopting Witness Horii's analysis, the Order deprives the Companies' customers of approximately $18,000,000 in net savings and disrupts the feasibility of future EE/DSM programs. For these reasons, and as discussed more fully below, the Companies respectfully request reconsideration and rehearing of the Order in accordance with this Petition.

[6] The definition, as of the date of this filing, can be found here: https://www.eia.gov/energyexplained/use-of-energy/efficiency-and-conservation.php#:~:text=Energy%20efficiency%20generally%20pertains%20to,amount%20of%20energy%20end%20use.

STANDARD OF REVIEW

S.C. Code Ann. § 58-27-2150 allows a party to file a petition for rehearing and/or reconsideration in respect to any "matter determined in such proceedings and specified in the application for rehearing, and the Commission may, in case it appears to be proper, grant and hold such rehearing." The Commission's review of the Petition is governed by S.C. Code Ann. Reg. 103-825(4), which requires the Petition to:

> [s]et forth clearly and concisely:
>
> (a) The factual and legal issues forming the basis for the petition;
>
> (b) The alleged error or errors in the Commission order;
>
> (c) The statutory provision or other authority upon which the petition is based.

A petition for rehearing and/or reconsideration allows the Commission to identify and correct specific errors and omissions in its prior rulings where there are errors that need to be corrected or omissions that need to be addressed. *See In re: South Carolina Electric & Gas Company*, Order No. 2013-05 (Feb. 14, 2013). Further, the Commission's order may be reversed on appeal "if substantial rights of the appellant have been prejudiced because the administrative findings, inferences, conclusions, or decisions are affected by an error of law or are clearly erroneous in view of the reliable, probative, and substantial evidence on the whole record. (S.C. Code Ann. § 1-23-380(5).)

In issuing its orders, the Commission has a heightened duty to make "explicit findings of fact which allow meaningful appellate review of these complex issues." *See Patton v. South Carolina Public Service Com'n*, 312 S.E.2d 257 (1984); *Seabrook Island Property Owners Assn v. South Carolina Public Service Comm'n*, 401 S.E.2d 672, at 674 (1991). Although the South Carolina Supreme Court uses a deferential standard when reviewing a Commission decision, the

decision must be based on substantial evidence on the whole record. *See Kiawah Prop. Owners Grp. v. The Pub. Serv. Comm'n of S.C.*, 593 S.E.2d 148 (2004).

ARGUMENT

The Order errs by ignoring evidence in the record supporting the Companies' free-ridership, and by instead adopting Witness Horii's fundamentally flawed analysis. Importantly, the preponderance of the evidence is the burden of proof in this proceeding.[7] It is a low standard. that is achieved so long as the scales are tipped—even slightly—in favor of the Companies. Stated differently, "the burden of showing something by a preponderance of the evidence . . . simply require[s] the trier of fact to believe that the existence of a fact is more probable than its nonexistence." *U.S. v. Manigan*, 592 F.3d 621, 831 (4th Cir. 2010). The record of this proceeding reflects that the Companies achieved this burden of proof through, in part, explanatory expert testimony and data-driven analysis proving the cost-effectiveness of the Program. On the other hand, Witness Horii's analysis contains fundamental flaws and his conclusions are simply unsupportable by the record in this proceeding. As such, the Companies respectfully request reconsideration and rehearing (to the extent necessary) on this issue for the following reasons:

1. The Order fails to properly consider evidence in the record that justifies the Companies' estimate of free-ridership.

2. The Order improperly relies upon Witness Horii's flawed definition of free-ridership and improper calculation of free-ridership to deny the Program.

3. The Order ignored the Companies' presentation of the quantifiable benefits of the Program.

4. The Order errs in its failure to properly consider the safeguards provided by the EM&V process, particularly given that the Companies are willing to bear the risk of any errors in their cost-effectiveness calculations.

[7] S.C. Code Ann. § 1-23-600(A)(5) ("Unless otherwise provided by statute, the standard of proof in a contested case is by a preponderance of the evidence.").

As discussed below, if the Petition is granted, the Companies respectfully request that the Commission affirm the conclusions that that solar PV may serve as an EE/DSM measure under South Carolina law and that lost revenue recovery is available under the Program.

I. Grounds for Reconsideration and/or Rehearing.

a. The Order fails to properly consider evidence in the record that justifies the Companies' estimate of free-ridership.

The Companies provided specific evidence that a 10% free-ridership estimate is not only appropriate, but likely exceedingly high based upon the Companies' calculations that were entered into the record. (*See, e.g.*, Tr. Vol. 4, p. 651.24 – 654.1.) To be clear, free-ridership measures the percentage of customers who receive an incentive, but would have participated even if they had not. (Tr. Vol. 1, p. 141.7 – 142.1.) Free-ridership does not measure the number of customers who installed a measure without receiving the incentive or who were influenced by those who did receive the incentive. (*Id*.) Under the Program, a free-rider would be someone that receives the incentive, but would have installed solar panels and given the Companies control over the customer's thermostat for a period of twenty-five (25) years. To date, **no customer has agreed to do this** without an incentive, and the Companies have no reason to believe that any customer would do so going forward without an incentive. To assume that **any** customer—much less 79% of Program participants as assumed by Horii—would invest in rooftop solar PV and agree to 25 years of participation in Winter BYOT without receiving an incentive from the utility is illogical on its face. Although this fact alone is sufficient to support a 0% estimate, Witness Tim Duff further explained the analysis behind the Companies' estimate.

Witness Duff explained that free-ridership is typically lowest when adoption of the measure was minimal prior to the incentive offering. (Tr. Vol. 3, p. 576.18.) The data presented by Witness Duff proved the Companies' residential customers in South Carolina adopted solar

(without the additional requirement of allowing third party control) at an incredibly low rate in 2020. (*Id*.) Only 1,559 residential customers installed rooftop solar in 2020. (*Id*.) This represents less than **one quarter of one percent (0.23%)** of the Companies' residential customers. (*Id*.) Although this adoption rate is extremely low, it represents the "highest year" of solar adoption on the Companies' system in South Carolina. (Tr. Vol. 3, p. 596.24.) This means that had the Companies used any other year as a benchmark for free-ridership, the Program's cost-effectiveness scores would have been **higher**. Further, the Companies forecast that when enrolling a smart thermostat that allows third party control is added as a requirement for eligibility, the adoption rate will be lower and the program would be more cost-effective. The Participant Cost Test presented by Witness Duff indicated that an incentive is **required** to increase this adoption rate. (Tr. Vol. 3, p. 576.19.) Without the incentive, the economics of smart thermostat, solar adoption are not feasible for the substantial majority of residential customers in South Carolina.[8] (*Id*.) As explained by Witness Lon Huber, this low adoption rate, the high upfront cost of solar, and the fact that no customer has ever installed solar and allowed the Companies to control their thermostat without an incentive, would likely support a 0% free-ridership estimate. (Tr. Vol. 4, p. 652.4 – 652.12.)

However, Witness Duff noted that the Companies were careful to ensure that no benefits are overstated before the Commission. (Tr. Vol. 3, p. 610.13 – 611.15.) Out of an abundance of caution, the Companies determined a conservative approach would be preferred in this case and utilized a 10% estimate for free-ridership. (Tr. Vol. 4, p. 652.14 – 652.21.) This 10% free-ridership estimate is also consistent with the Companies' real-world experience. For example, the average

[8] Incredulously, Witness Horii further attacked the Companies' analysis by claiming that the Companies should not use forecasted adoptions to project free-ridership. However, Witness Horii then admitted at hearing that "yes, I based my free-rider – free-rider analysis on **forecasted adoptions**." (Tr. Vol. 3, p. 533.19 – 533.20.) (emphasis added).

realized free-ridership across the EE/DSM measures offered by DEC and DEP equals 18%—well in the range of what the Companies projected for the Program.

A review of the record in this proceeding clearly reflects that the Companies demonstrated by a preponderance of the evidence that a 10% free-ridership estimate is reasonable—particularly given that the record supports an estimate **far lower** than 10%. As a result, this 10% estimate for free-ridership is appropriate for utilization under the UCT. Using this 10% estimate, the UCT yields results far in excess of 1.0 for both DEC and DEP—2.52 and 1.95, respectively. (Tr. Vol. 1, p. 57.7.) To be clear, the free-ridership estimate for the Program could have been increased to 50% for DEP and 60% to DEC, and the Program would have still been cost-effective. The Companies remain confident that these numbers indicate a high-value proposition for their customers. For these reasons, the Companies respectfully request that the Commission re-consider this critical finding in accordance with the above.

Finally, while the Commission determined that the evidence offered by the Companies on free-ridership is "lacking," no utility—indeed, no entity—can show free-ridership prior to implementing a program. Unlike evidence in a civil or criminal proceeding, proceedings before the Commission—including this one—often involve a proposed program believed to be in customers' best interest, but for which certain details concerning program implementation will not be known until the program is implemented, which is well after the evidentiary hearing. That dynamic combined with Witness Horii's recommendation would lead to an illogical conclusion, where the proponent would be required to proffer evidence that does not yet exist, creating an impossible standard under which **no new customer-benefit programs could ever be approved**.

This dynamic notwithstanding, as explained above, the Companies proffered a substantial amount of evidence supporting the 10% free-ridership assumption, evidence that was not relied

upon by the Order. Even Witness Horii agreed that a 10% free-ridership assumption would be appropriate "for programs that would have almost no market uptake without the incentive program." (Tr. Vol. 3, p. 459.22.) As demonstrated by the Companies and reflected in Witness Duff's testimony, "[a]n adoption rate [for solar] of 0.23% is incredibly low and is consistent with Mr. Horii's view of 'almost no market uptake,' making 10% an appropriate figure for free ridership." (Tr. Vol. 3, p. 576.18.) That adoption rate does not even account for the requirement to make the 25-year Winter BYOT commitment, meaning that the 0.23% adoption rate would likely grossly overstate adoption going forward without the incentive.

These points were given no analysis or true consideration in the Order. As noted, no entity will ever be able to demonstrate with evidence a free-ridership figure prior to implementing a program. However, customers are abundantly protected from inexact assumptions through the EM&V and true-up process—that is simply how EE and DSM programs work and have worked since their inception both in this State and elsewhere. The Companies have a serious concern that a broad finding that evidence on free-ridership is "lacking" could be made in all future EE and DSM proceedings, ending any and all savings from potential future programs. This would be at odds with the Commission's recent encouragement in the resource planning dockets to "capitalize on EE/DSM saving opportunities to reduce energy costs, as well as the risk of rising energy costs, for all Duke customers." Order No. 2021-447 at 34, Docket Nos. 2019-224-E & 2019-225-E (June 28, 2021). For these reasons, the Companies request that the Commission reevaluate the evidence before it and reconsider its findings on free-ridership.

b. <u>The Order improperly relies upon Witness Horii's flawed definition of free-ridership and improper calculation of free-ridership to deny the Program</u>.

The Order errs in relying upon Witness Horii's fundamentally flawed free-ridership analysis to strike down the Program. Witness Horii estimates free-ridership under the Program at

a staggering 79%. (Tr. Vol. 3, p. 459.26.) This percentage is higher than any free-ridership rate that has ever been established through EM&V for any of the Companies' existing EE/DSM programs. Witness Horii was able to arrive at 79% only through three fundamental flaws in his analysis: (i) Witness Horii conflates free-ridership with spillover; (ii) Witness Horii's adoption forecast is based solely upon false equivalencies; and (ii) Witness Horii's standard of "market uptake" is illogical and would be the death-knell for EE/DSM programs in South Carolina

i. Witness Horii conflates free-ridership with "spillover."

Witness Horii stated that rooftop solar provides "free 'advertising'" given that customers can see rooftop solar panels on a neighbor's home and may be incentivized to install the same. (Tr. Vol. 3, p. 463.22.) Based on this false and illogical premise, Witness Horii linked this "free advertising" to free-ridership by claiming that "Solar PV is clearly in another league from little known, untrusted, and obscure EE alternatives with 10% free rider values." (*Id*.) However, as explained more fully above, customers would also have to also install a smart thermostat to be a free-rider, as well as commit to 25 years of participation in the Winter BYOT program. These smart thermostats (and customers' 25-year commitments) could not be seen from the road, but Witness Horii did not address this critical omission.

This pattern of omission and flawed assumptions is prominent throughout Witness Horii's analysis and is utilized here to incorrectly link this "free advertising" phenomenon to free-ridership. (*Id*.) To be clear, they bear no relation. Free-ridership objectively measures the percentage of customers who receive an incentive, but would have participated even if they had not. (Tr. Vol. 1, p. 141.7 – 142.1.) Free-ridership does not measure the number of customers who installed a measure without receiving the incentive or who were influenced by those who did receive the incentive. (*Id*.) What Witness Horii describes is called "spillover"—**not** free-ridership.

(Tr. Vol. 3, p. 579.19 – 580.7.) Spillover occurs when additional energy savings are achieved as a result of non-participants installing the measure due to the Program's influence, and it increases a program's cost-effectiveness since the utility program is encouraging adoption by these customers without having to pay an incentive. (*Id*.) As explained by Witness Duff, while free-ridership reduces the savings from the Program, spillover **increases** savings from the Program. (Tr. Vol. 3, p. 580.1 – 580.12.) Although Witness Horii attempts to link the two and drive down the Program's cost-effectiveness, spillover would actually **increase** the Program's UCT score and increase savings for all customers. (*Id*.)

Additionally, Witness Horii's example fails to acknowledge the low adoption rate in the Companies' territory. Although there may be a "tremendous amount of free advertising" for technologies with a high adoption rate, less than 2% of customers have installed solar on the Companies' systems. This is part of the reason the Companies did not include spillover in their cost-effectiveness tests. Customers simply are not seeing solar panels (and certainly not smart thermostats inside customers' homes) around every corner, as Witness Horii suggests, and Witness Horii's recommendations ensure this will not happen anytime soon.

ii. The adoption forecast in Witness Horii's free-ridership calculation is based solely upon a false equivalency.

Witness Horii's exceedingly high estimate of free-ridership is even more questionable when evaluating the calculation itself. By comparing two net energy metering ("NEM") rate schedules to then forecast solar adoption for the Program, Witness Horii relied upon a false equivalency. (Tr. Vol. 3, p. 459.24.) Witness Horii can only support his comparison of Program participants to ineligible NEM customers by ignoring that (i) customers must enroll in the Winter BYOT program for 25 years, (ii) Schedule RS customers cannot participate in the Program, and (iii) even if Schedule RS customers could participate in the Program, their usage characteristics

would dramatically affect their desire to participate in the Program. These are independent, critical flaws in Horii's "analysis" and development of his inflated free-ridership values.

1. Witness Horii ignored the 25-year Winter BYOT requirement when estimating free-ridership.

First, Witness Horii drew a comparison that omitted a critical aspect of the Program—specifically, the 25-year Winter BYOT requirement. As explained by Witness Duff, customers enrolling in the Program must also enroll in the Companies' Winter BYOT program for a term of 25 years. (Tr. Vol. 1, p. 74.18 –74.23.) However, in estimating free-ridership, Witness Horii compared forecasted enrollment numbers under the Companies' Solar Choice NEM Tariffs to forecasted enrollment numbers under the Companies' previous "Full Retail" NEM tariffs. (Tr. Vol. 3, p. 459.24.) Witness Horii justified this comparison solely on the basis that the Full Retail NEM tariffs contain the same payback period as solar PV under the Program. (*Id*.) Witness Horii erroneously assumes, however, that the only difference between those NEM tariff options is the rate schedule. That is an incorrect assumption that renders his analysis completely unusable. Instead of simply switching rate schedules, customers under the Program would have to install solar **and** agree to enroll in Winter BYOT for 25 years. In other words, a true free-rider would be someone that participates in the Program, but would have (i) installed solar and (ii) provided the Companies with control over their thermostat for 25 years **without** the incentive. The motivation to enroll in the Program without an incentive would be far less than a customer simply switching from one NEM tariff to another. Yet, Witness Horii did not provide this analysis to the Commission, and the record simply does not support this comparison.

2. Witness Horii's forecasts are based upon customers that cannot participate in the Program.

Furthermore, the very fact that Witness Horii utilized the solar adoption for customers on Schedule RS at all in his free-ridership calculation is puzzling—those customers **cannot** participate in the Program. (Tr. Vol. 1, p. 151.15 – 151.22.) Witness Horii acknowledged this very fact during the hearing but failed to address the consequences of this analysis. (Tr. Vol. 3, p. 523.17.) Importantly, Schedule RS applies to customers that utilize a combination of electricity and gas. (Tr. Vol. 3, p. 523.10.) However, the Program makes clear that it is only available to all-electric customers on Schedule RE. (Tr. Vol. 3, p. 521.20.) Regardless of the resulting free-ridership percentage, the analysis is fundamentally flawed and provides no useful information because of this "apples-to-oranges" comparison. To put this in perspective, this approach would be similar to utilizing adoption rates for multi-family residences as the baseline data to analyze a program only applicable to single family homes. The baselines are so fundamentally different that the results would be useless. This is precisely the approach taken by Witness Horii when comparing free-ridership under the Program to customers that **cannot** even participate.

3. Witness Horii ignores the usage characteristics of these customer classes, which dramatically affects their motivation to participate in the Program.

Even assuming that Schedule RS customers could participate, Schedule RS customers have different usage characteristics than Schedule RE customers that can participate in the Program. (Tr. Vol. 3, p. 523.10.) These usage characteristics create different motivations. For example, Witness Huber explained that eligible customers under rate Schedule RE are compensated "significantly less" than those under schedule RS due to the offset value of self-consumed solar—meaning they would need an incentive in order to be motivated to adopt solar under the NEM rate. (Tr. Vol. 4, p. 766.25.) Schedule RS customers also have a significantly different load profile than Schedule RE customers. Schedule RS customers' load mostly corresponds to solar production in

the summer. This means that solar panels would be producing power during the times in which those customers are consuming the most power. On the other hand, the load profile of Schedule RE customers that are eligible for the Program extends past peak solar production when they heat their homes with electricity—meaning that they may be consuming peak power during times when solar is not producing. This difference in load shapes means that Schedule RS customers naturally have a greater incentive to install solar than Schedule RE customers because their load profile aligns with solar production. As explained by Witness Huber, this difference in load shape means that when looking at schedule RE—customers who **can** participate in the Program—the Companies would "expect very low adoption on RE, absent this type of program." (Tr. Vol. 4, p. 766.25 – 767.1.)

iii. Witness Horii's standard of "market uptake" is illogical and would be the death-knell for EE/DSM programs in South Carolina.

Witness Horii conceded that a 10% estimate for free-ridership is appropriate "for programs that have almost no market uptake without the incentive program." (Tr. Vol. 3, p. 459.22.) However, Witness Horii did not believe this 10% estimate is appropriate in the Program's UCT. To be clear, only approximately 2% of the Companies' customers in South Carolina have installed rooftop solar panels in aggregate—with the 2020 data representing the highest adoption rate at **less than one quarter of one percent (0.23%)**. (Tr. Vol. 3, p. 576.18.) This means that to deny the Companies' free-ridership estimate, Witness Horii must necessarily believe that **less than one quarter of one percent (0.23%)** represents healthy market uptake—an illogical result.

Going forward, this standard would force the Companies to only propose similar EE/DSM programs for technologies that have been adopted by less than 2% of customers. This stands in direct conflict to the Commission approved EE/DSM Mechanism, which requires the Companies

to propose only EE/DSM programs that are "commercially available and sufficiently mature." In reality, Witness Horii's standard would constrain EE/DSM programs in South Carolina to unproven, unpopular technologies—a detrimental result that would violate the EE/DSM Mechanism and severely restrict future proposals. Even then, if Witness Horii is allowed to selectively apply or omit certain aspects of the Program when analyzing free-ridership (e.g., omitting the Winter BYOT requirement), the burden of proof on the Companies would be insurmountable.

In sum, Witness Horii's analysis requires the Commission to take several leaps in logic that are clearly contradicted by facts in the record. The Order's reliance on this analysis as the primary factor in denying the Program finds no basis in the record. By adopting the recommendation of Witness Horii, the Order will likely have the unintended consequence of establishing insurmountable barriers for future EE/DSM programs. As discussed above, the Companies leveraged massive amounts of data, years of previous EE/DSM experience, as well as industry-accepted cost tests and methods to estimate free-ridership and corresponding cost-effectiveness of the Program. The Companies' analysis provides everything to the Commission except **actual numbers**—numbers that simply do not exist. Yet, the Program was denied based upon an analysis that stands in direct conflict with accepted EE/DSM principles in South Carolina and selectively applies criteria to undermine the entire Program. As outlined above, to accept Witness Horii's analysis, the Commission must ignore:

i. The Companies' real-world experience with free-ridership, which averages 18%;

ii. The accepted distinction between spillover and free-ridership;

iii. The realities of the Program's eligibility requirements (i.e., 25-year commitment to Winter BYOT);

iv. The *de minimis* adoption rates of solar alone on the Companies' systems;

v. Witness Horii's false equivalency utilized in his adoption forecasts; and

vi. The express language of the Commission-approved EE/DSM Mechanism.

Only once these factors are ignored can one conjure up a free-ridership percentage greater than **any** percentage realized under the Companies' existing Commission-approved EE/DSM programs. Adoption of this "Horii EM&V" process would have significant consequences because if it is the standard going forward, this creates a threshold that the Companies are simply unable to achieve or even accurately ascertain because Witness Horii's analysis stands in direct conflict with the long-standing tenets of EE/DSM programs in South Carolina.

For these reasons, the Companies respectfully request that the Commission re-consider its reliance on Witness Horii's flawed analysis in accordance with the above. Likewise, the Companies request a re-hearing on this issue if the Commission deems such re-hearing necessary to further understand this issue.

c. <u>The Order ignored the Companies' presentation of the quantifiable benefits of the Program.</u>

The Order claimed that the Companies did not quantify the "increased benefit" arising to the system due to the Program. (Order at 24.) The record clearly reveals otherwise. Witness Duff explained and quantified these benefits during the hearing:

> All customers will benefit from participants' reduced demand, which will reduce utility system costs through avoided electric production, avoided electric capacity, and avoided electric transmission-and-distribution investments. This ultimately results in savings to all customers. **The estimated total avoided costs of the programs are approximately $26.5 million for DEC and $3.9 million for DEP, compared to the approximate costs of the program**, which are approximately $10.5 million for DEC and $2.0 million for DEP, **a net savings** for both DEC and

> DEP customers overall. Low-income customers will benefit from the overall system savings, and the companies also plan to engage with the EE/DSM Collaborative to expand the program for low- to moderate-income customers.
>
> (Tr. Vol. 1, p. 55.11 – 55.24.) (emphasis added.)

Witness Duff explained that customers would see a "net savings" which is the "increased benefit" the Order claims the Companies did not quantify. (*Id*.) Witness Duff also explained the underlying calculations of these costs and benefits. (Tr. Vol. 4, p. 641.21 – 642.19.) The cost calculations "reflect all of the program costs that are incurred to administer and provide incentive to customers to participate in the program." (Tr. Vol. 4, p. 641.22 – 641.24.) Witness Duff explained that calculating the benefits involved "taking the modeled energy savings and capacity savings associated with the measures . . . and looking at those energy savings versus when those savings occur and then calculating peak reductions and energy reductions that are then used to calculate the avoided cost." (Tr. Vol. 4, p. 642.9 – 642.15.)

In fact, Witness Horii even utilized the Companies' estimates of costs and benefits when evaluating the Companies' TRC score.[9] Clearly, the Companies **did** quantify the increased benefits of the Program and presented them both in testimony and at hearing. These increased benefits represent millions of dollars in estimated savings to the Companies' customers—savings that were denied to those customers on the limited basis of the "Horii EM&V" process, which has no foundation in logic, South Carolina law, or accepted Commission practice.

d. <u>The Order errs in its failure to properly consider the safeguards provided by the EM&V process, particularly given that the Companies are willing to bear the risk of any errors in their cost-effectiveness calculations.</u>

The Order ignores the fact that **even if** the Companies are incorrect in their estimates, customers would be protected because of the safeguards of the EM&V process. This omission is

[9] Table 4 of Witness Horii's direct testimony contains a line-by-line breakdown of the Companies' quantified costs and benefits.

critical given that the EM&V process would ensure that the Companies' customers are protected from errors, if any, in the Companies' estimates of (i) free-ridership or (ii) costs and benefits. (Tr. Vol. 3, p. 608.12 – 609.2.) The real risk of an unsuccessful program is placed upon the Companies' shareholders that would have to bear any adverse findings from the "true-up" process during EM&V. (*Id*.) As explained during the hearing, **the Companies believe strongly in the customer benefits that would result from this Program and are willing to take that risk**.

Witness Duff explained that the EM&V process will actually "update the realized free-ridership as part of the overall net-to-gross ratio used to determine net savings impacts for cost recovery purposes." (Tr. Vol. 3, p. 576.19 – 576.20.) If costs outweigh the benefits of the Program, the Commission could order modifications or termination of the Program to ensure that customers do not overpay for benefits. (*Id*.) At that point, the lost revenues and the incentive would be trued up to ensure that customers are only paying "for the measured net energy savings associated with the Program." (Tr. Vol. 3, p. 576.20.) (emphasis in original). As described by Witness Moore, the net effect of this process is similar to implementing restrictions on the Program that are similar to those under pilot programs, which mitigates risks to the Companies' customers in ways that non-EE/DSM programs cannot. (Tr. Vol. 6, p. 955.16.)

Witness Horii flipped this paradigm on its head and created a *de facto* (and critically flawed) EM&V process on the front-end to deny the Program in its entirety. This "Horii EM&V" process is not only novel, but it is simply inconsistent with South Carolina law and the EE/DSM Mechanism which require EM&V **after** a program has been implemented to review **actual numbers**. The backward-looking review utilized by the South Carolina EM&V process ensures customers pay for only those actual, realized savings from the Program and places the risk of an unsuccessful program squarely upon the Companies.

For these reasons, the Companies respectfully request that the Commission reevaluate and reconsider its finding on cost-effectiveness in light of the procedural safeguards afforded by EM&V and the willingness of the Companies to bear the risk rather than customers.

II. If the Petition is granted, the Companies respectfully request that the Commission affirm certain findings that were not addressed by the Order.

The Order did not address several key issues in the docket because it struck down the Program entirely upon Witness Horii's flawed cost-effectiveness evaluation. If the Petition is granted as to the cost-effectiveness issue, the Companies respectfully request that any resulting order also affirm the following[10]:

a. Solar PV qualifies as an EE measure under S.C. Code Ann. § 58-37-20.

The Order acknowledges that this is the "seminal question in these dockets." (Order at 9). As explained by Witness Duff, solar can in fact serve as an EE measure under S.C. Code Ann. § 58-37-20 because it enables behind-the-meter self-consumption and alleviates strain upon the grid.[11] The Applications outlined the Companies' position that the Program proposed in these proceedings falls squarely within the parameters of this section of South Carolina law because solar PV facilities are "energy supply and end-use technologies" that are "cost-effective, environmentally acceptable, and reduce energy consumption or demand." (Applications at 5.) The Applications also noted that solar is a renewable energy technology, which is a vehicle for EE/DSM that is expressly contemplated by the statute. (*Id*.) Witness Duff further testified to the Program's compliance with S.C. Code Ann. § 58-37-20 by noting that the Program "would literally reduce the energy requirements of the utility and its customers through renewable energy

[10] Each of these topics is more fully addressed by the Companies in the record—in particular, within the Companies' brief and proposed order—and the Companies incorporate all such arguments by reference in the interest of brevity.

[11] This argument is further bolstered by the newly-revised EIA definition of energy efficiency outlined below.

technologies." (Tr. Vol. 1, p. 57.5.) Witness Duff drew parallels to other EE/DSM programs that were approved by the Commission under S.C. Code Ann. § 58-37-20 such as the Companies' solar water heating program, which similarly uses energy from the sun to reduce consumption from the grid. (*See id.*) Each of these characteristics fall squarely within the EE/DSM statute under South Carolina law.

Additionally, the U.S. Energy Information Administration's ("EIA") definition of energy efficiency that was so heavily relied upon by Witness Horii—and which was block-quoted in the Commission's Order—**has changed**. Although Witness Horii placed great weight upon the EIA definition to allege that the Program did not qualify as an EE measure, the revised EIA definition recognizes a significantly less restrictive view of EE.[12] Rather than treating EE and energy conservation measures as distinct buckets, the revised definition indicates that "Energy efficiency (EE) and energy conservation (EC) are related and often complimentary or overlapping ways to avoid or reduce energy consumption." (*Id.*) The definition goes on to state that "EE and EC measures can help to directly lower energy costs for consumers and potentially reduce greenhouse gas emissions associated with energy use." (*Id.*) The revised definition notes that "Energy efficiency generally pertains to the technical performance of energy conversion and consuming devices and building materials." (*Id.*) Under this revised definition, the Program would clearly qualify as EE because it incents the installation of a device that enables "energy conversion"—solar PV converts sunlight into electrical energy and BYOT that enhances the technical performance. Again, under this definition, it makes no difference whether solar PV also has energy conservation characteristics because these often "overlap" with EE measures.

[12] The definition, as of the date of this filing, can be found here: https://www.eia.gov/energyexplained/use-of-energy/efficiency-and-conservation.php#:~:text=Energy%20efficiency%20generally%20pertains%20to,amount%20of%20energy%20end%20use.

This revision is significant because the Order appears to adopt the outdated concepts of the prior EIA definition in ordering that it "appreciates the determination of Duke to develop **conservation** programs to ensure a healthy and reliable grid, [but] we disapprove the [Program] as a cost-effective **energy efficiency** program under section 58-37-20." (Order at 38.) (emphasis added). Further, while the Order appears to draw a distinction between "conservation" and "energy efficiency," even the South Carolina statute governing these programs lumps them together, permitting procedures that "encourage electrical utilities and public utilities providing gas services subject to the jurisdiction of the commission to invest in cost-effective **energy efficient technologies and energy conservation programs**." (S.C. Code Ann. § 58-37-20.) (emphasis added.) The Companies respectfully request that any action taken by the Commission on reconsideration accurately reflects these concepts.

b. South Carolina law mandates that the Companies recover lost revenues from implementing the Program.

If the Program is approved, S.C. Code Ann. § 58-37-20 and the EE/DSM Mechanism mandate that the Companies would be able to recover net lost revenues associated with the Program. Contrary to the ORS's position during the proceeding, S.C. Code Ann. § 58-40-20(I) would **not** prohibit the Companies from recovering these lost revenues, and in fact has no bearing on EE/DSM lost revenues and contemplated in the EE/DSM statute and Mechanism. The section cited by the ORS arises from Act 62, which required the establishment of new **NEM programs**. (Tr. Vol. 4, p. 683.10 – 683.23.) As explained by Witness Leigh Ford, the Companies are not requesting recovery of lost revenues associated with NEM programs under Act 62. (*Id*.) Instead, the Companies are proposing to recover "net income, or net lost revenue as defined in S.C. Code Section 58-37-20 and in the approved [EE/DSM] Mechanism." (Tr. Vol. 4, p. 683.19 – 683.23.) As explained by Witness Ford at length during the hearing, there is a "significant difference"

between the provisions of Act 62 related to NEM programs and the EE/DSM provisions under South Carolina law. (Tr. Vol. 4, p. 685.6.) Although the ORS attempts to conflate these two provisions of South Carolina law, Act 62 did not abridge or otherwise modify the Companies' rights to recover lost revenue associated with EE/DSM programs. The Companies still collect lost revenues for these programs under the EM&V process and would be able to do so under the Program as well.

CONCLUSION AND REQUEST FOR RELIEF

The Companies believe the Commission should reconsider and rehear (to the extent necessary) Order No. 2022-239 to address and remedy the unlawful rulings described in this petition and avoid the unintended consequence of significantly chilling the EE/DSM market in South Carolina. Pursuant to S.C. Code Ann. § 58-27-2150, the Companies request that the Commission grant this Petition, vacate Order No. 2022-239, and issue a new order consistent with the arguments set out in this Petition.

Dated this 14th day of April, 2022.

s/J. Ashley Cooper
Sam Wellborn, Associate General Counsel Duke Energy Corporation
1201 Main Street, Suite 1180
Columbia, SC 29201
sam.wellborn@duke-energy.com

J. Ashley Cooper, Esquire
Parker Poe Adams & Bernstein LLP
200 Meeting Street, Suite 301
Charleston, South Carolina 29401
ashleycooper@parkerpoe.com

Marion ("Will") William Middleton, III
Parker Poe Adams and Bernstein LLP
110 East Court Street. Suite 200
Greenville, SC 29601

willmiddleton@parkerpoe.com

Attorneys for Duke Energy Progress, LLC and Duke Energy Carolinas, LLC